DISSERTATION: Measuring the Impact of App Inventor for Android and Studio-Based Learning in an Introductory Computer Science Course for Non-Majors

STUDENT: Khuloud Nasser Ahmad

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This study implemented an experimental introductory CS course for non-CS majors focusing on two pedagogic factors: 1) the use of a visual blocks programming language known as App Inventor for Android (AIA) and 2) the adoption of SBL as the main teaching methodology. Participants included 30 undergraduates enrolled in two introductory CS courses; the experimental course (CS116) and a traditional lecture oriented CS course. The Motivated Strategies for Learning Questionnaire (MSLQ) was implemented in both courses at several stages. Statistically significant differences were found in the Control of Learning Beliefs, Help Seeking, and Intrinsic Motivation scales, were CS116's participants scored higher rates. In CS116, entry and exit interviews were conducted as well as a mind maps analysis. Their results showed a positive response to the pedagogic factors, positive attitudes towards CS, and an improvement in the understanding of CS. The majority of participants did very well and showed creativity with not one student failing the course. They found the experimental course to cultivate collaboration, creativity, and motivation to learn. The experimental approach was found have a positive effect on students' motivation, achievement, and attitude towards CS.